



BAY OF BENGAL PROGRAMME
DEVELOPMENT OF SMALL-SCALE FISHERIES



REVIEW OF EXPERIENCES WITH
AND PRESENT KNOWLEDGE ABOUT
FISH AGGREGATING DEVICES

BOBP/WP/23

Mailing Address:
Post Bag No 1054
Madras 600 018
India

Cables: FOODAGRI
Telex: MS-211 FISH
Phone: 71284, 71887, 77760

Street Address:
81 St Mary's Road
Ashirattapuram
Madras 600 018

BAY OF BENGAL PROGRAMME
Development of Small-Scale Fisheries

BOBP/WP/23
GCP/RAS/040/SWE

REVIEW OF EXPERIENCES WITH
AND PRESENT KNOWLEDGE ABOUT
FISH AGGREGATING DEVICES

BOBP/WP/23

By M. Bergstrom
Fishery Biologist
(Associate Expert)
Bay of Bengal Programme

Executing Agency:
Food and Agriculture Organisation
of the United Nations

Funding Agency:
Swedish International
Development Authority

Development of Small-Scale Fisheries in the Bay of Bengal
Madras, India, November 1983

A review of experiences worldwide and of present knowledge about fish aggregating devices (FADs) was carried out by the BOBP during 1981. Nearly 150 institutions and experts were requested to contribute. This paper draws on these replies as also on other published material.

The paper describes a spectrum of FADs ranging from very simple and cheap traditional applications for nearshore waters to modern, highly sophisticated and expensive products for off-shore aggregation of tunas and tuna-like fishes.

Some of the experimental designs described here are worth considering for indicative fishing trials.

The preparation of this paper is an activity of the Bay of Bengal Programme for Small-Scale Fisheries Development, referred to in brief as BOBP. The BOBP is funded by the Swedish International Development Authority (SIDA) and the United Nations Development Programme (UNDP) and executed by the Food and Agriculture Organisation of the United Nations. Countries bordering the Bay of Bengal are members of the Programme. Its main aims are to develop, demonstrate and promote methodologies to improve the conditions of small-scale fisherfolk and to assess and monitor fishery resources.

CONTENTS

	<i>Page</i>
1. Introduction	i
2. FADs in general	1
3. Aggregating devices	2
3.1 FADs placed on the bottom (also known as artificial reefs or as bottom FADs)	2
—old tyres	2
— concrete	3
— fibreglass reinforced plastic (FRP)	4
—sandbags	4
— mangrove wood	4
— mangrove/coconut tree	4
— trees or branches	4
— bundled twigs	4
— shipwrecks	7
—other examples:	7
— piled stones	
— boat with stones	
— steel cubes	
— bus shell	
3.2 FADs anchored or drifting on or near the water surface (surface FADs)	7
— lures for flying fish	7
— anchored floats	8
— brushwood	8
— free-drifting vessel	11
— objects of different shapes	11
— bamboo rafts	12
3.3 FADs anchored in the water column (mid-water FADs)	13
(a) Traditional	13
— coconut leaves	
— bamboo baskets	
— Payaw” rafts	
(b) Modern FADs—experimental	19
—multityre	19
—pvc pipes	19
— prisms	19
— pyramids and cones	21
— petroleum platforms	21
— other	
(c) Modern FADs — under commercial fishing trials	23
— Fiji	23
—Japan	23
— American west coast	24
— Hawaii	26

– Maldives	35
—Samoa	36
– Australia	36
– New Zealand	40
– Palau	40
—Guam	40
– Marianas	41
4. Selection of sites for and anchoring of FADs of modern technological design	41
– type and weight of anchor	42
– material, dimension and length of anchoring line	42
– types of connections between parts, their materials and dimensions	43
– shock absorber for anchoring line	43
– possibilities for recovery of anchoring device if raft or buoy is lost	43
– possible risks of FAD loss	44
5. Harvesting methods	45
– FADs placed on the bottom (bottom FADs)	45
– FADs anchored or drifting on or near the water surface (surface FADs)	45
– FADs anchored in the water column (mid-water FADs)	45
– The Indonesian Rumpon	46
– The Malaysian Unjang	46
– Japanese cuttlefish baskets	46
– Payaws of different types and modern-designed rafts and buoys	46
6. Other general considerations	49
– biological	49
– maintenance, ownership and access rights	49
– legal aspects and hindrance for vessels	50
– economy	50
– employment	50
– design of appendage	50
– ways to decrease the maximum stress	50
– cost-benefit ratio	50
– the design, size and deployment of anchors	51
—chafing	51
– corrosion	51
the small-scale FAD	51
7. References	52
Publications of the Bay of Bengal Programme	55